



US009370362B2

(12) **United States Patent**  
**Petty et al.**

(10) **Patent No.:** **US 9,370,362 B2**  
(45) **Date of Patent:** **Jun. 21, 2016**

(54) **SURGICAL STAPLERS WITH TISSUE PROTECTION AND RELATED METHODS**

USPC ..... 227/19, 176.1, 175.2, 180.1, 175.1;  
606/139, 153, 219  
See application file for complete search history.

(75) Inventors: **John K. Petty**, Winston-Salem, NC (US); **Lucas P. Neff**, Winston-Salem, NC (US)

(56) **References Cited**

U.S. PATENT DOCUMENTS

(73) Assignee: **Wake Forest University Health Sciences**, Winston-Salem, NC (US)

4,354,628	A	10/1982	Green	
4,610,383	A *	9/1986	Rothfuss et al.	227/19
4,788,978	A	12/1988	Strekopytov et al.	
5,104,394	A	4/1992	Knoepfler	
5,350,104	A	9/1994	Main et al.	

(Continued)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1096 days.

(21) Appl. No.: **13/410,760**

(22) Filed: **Mar. 2, 2012**

(65) **Prior Publication Data**

US 2012/0255986 A1 Oct. 11, 2012

**Related U.S. Application Data**

(60) Provisional application No. 61/472,894, filed on Apr. 7, 2011.

(51) **Int. Cl.**

**A61B 17/068** (2006.01)

**A61B 17/072** (2006.01)

**A61B 17/00** (2006.01)

**A61B 17/32** (2006.01)

(52) **U.S. Cl.**

CPC ..... **A61B 17/072** (2013.01); **A61B 17/068** (2013.01); **A61B 17/07207** (2013.01); **A61B 2017/00818** (2013.01); **A61B 2017/07214** (2013.01); **A61B 2017/07228** (2013.01); **A61B 2017/07271** (2013.01); **A61B 2017/320052** (2013.01)

(58) **Field of Classification Search**

CPC ..... A61B 17/0686; A61B 17/068; A61B 17/072; A61B 17/07207; A61B 17/07292; A61B 2017/00818; A61B 2017/07214; A61B 2017/07228; A61B 2017/07271; A61B 2017/320052

OTHER PUBLICATIONS

Endo GIA™ Ultra Universal Stapler, Covidien Surgical, date unknown but assumed prior to Apr. 7, 2011, Printed from the internet on Mar. 7, 2012, 1 page, <http://www.autosuture.com/autosuture/pageBuilder.aspx?topicID=194008&breadcrumbs=0:63659,39868:0,39870:0>.

DST Series™ GIA™ Single Use Reloadable Stapler, Covidien Surgical, date unknown but assumed prior to Apr. 7, 2011, Printed from the internet on Mar. 7, 2012, 1 page, <http://www.autosuture.com/autosuture/pageBuilder.aspx?topicID=234&breadcrumbs=0:63659,39868:0,39872:0>.

(Continued)

Primary Examiner — Scott A. Smith

(74) Attorney, Agent, or Firm — Myers Bigel & Sibley, P.A.

(57)

**ABSTRACT**

Surgical staplers include: (a) a stapler head having opposed first and second elongate jaws with opposing proximal and distal end portions; (b) a staple cartridge held in at least one of the first and second jaws, the stapler cartridge configured to concurrently deliver a plurality of parallel rows of staples; and (c) a tissue protection segment held in a proximal portion of at least one of the first and second jaws. The jaws are configured to close against target tissue and, at stapler firing, staples are delivered to a subset of tissue held inside the jaws so that tissue held by the tissue protection segment adjacent the proximal end portion of the stapler is not stapled.

**24 Claims, 10 Drawing Sheets**

